(No Model.) 4 Sheets—Sheet 1.

A. K. KELLER.

ATTACHMENT FOR OPERATING PHONOGRAPHS.

No. 518,190. Patented Apr. 10, 1894.

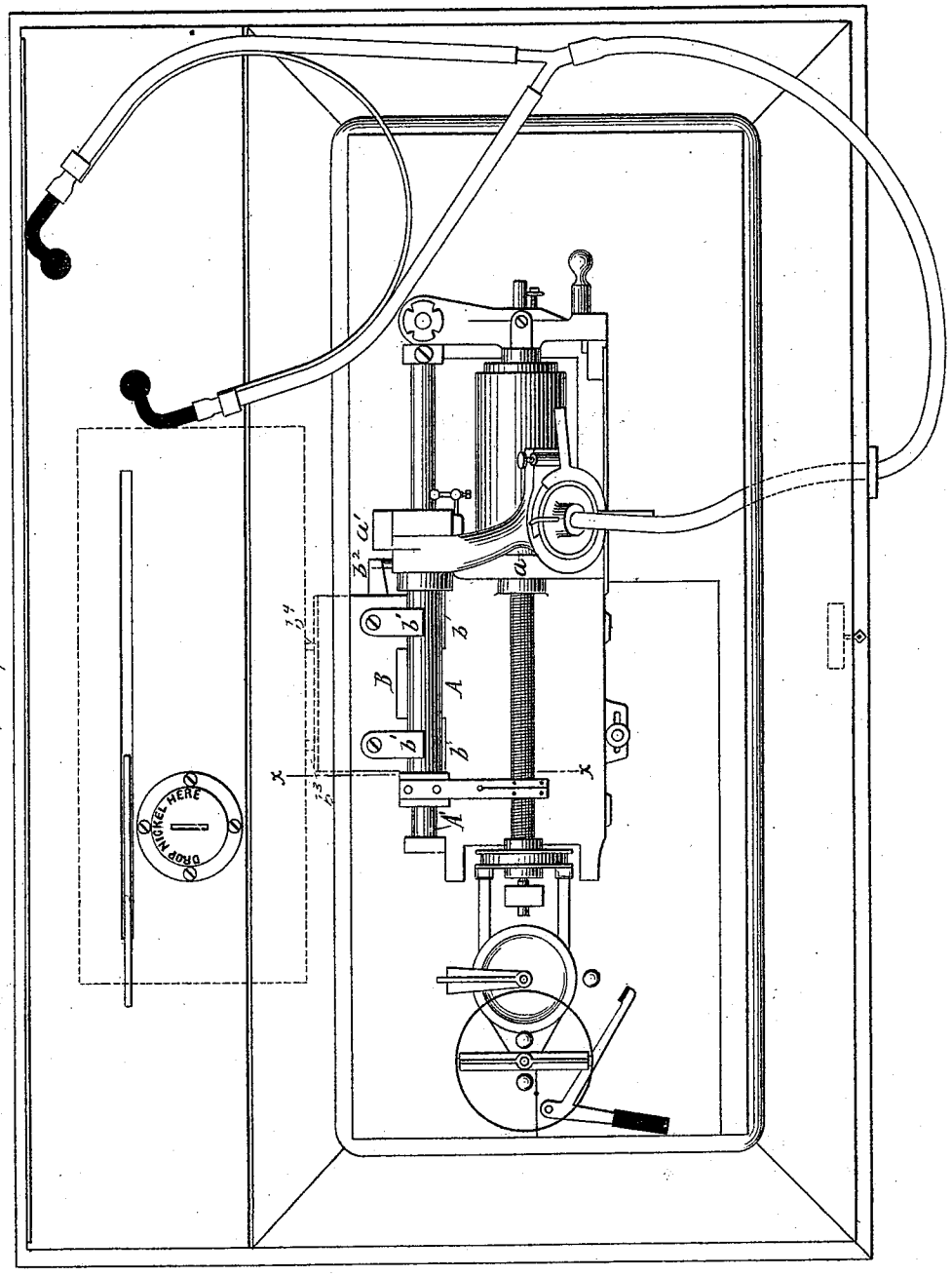


FIG. 1.

Witnesses
Edward C. Rowland.
F. L. Freeman

Inventor
Albert K. Keller,
By his Attorneys
Pedding & Riddle

THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 2.

A. K. KELLER.

ATTACHMENT FOR OPERATING PHONOGRAPHS.

No. 518,190. Patented Apr. 10, 1894.

FIG. 3.

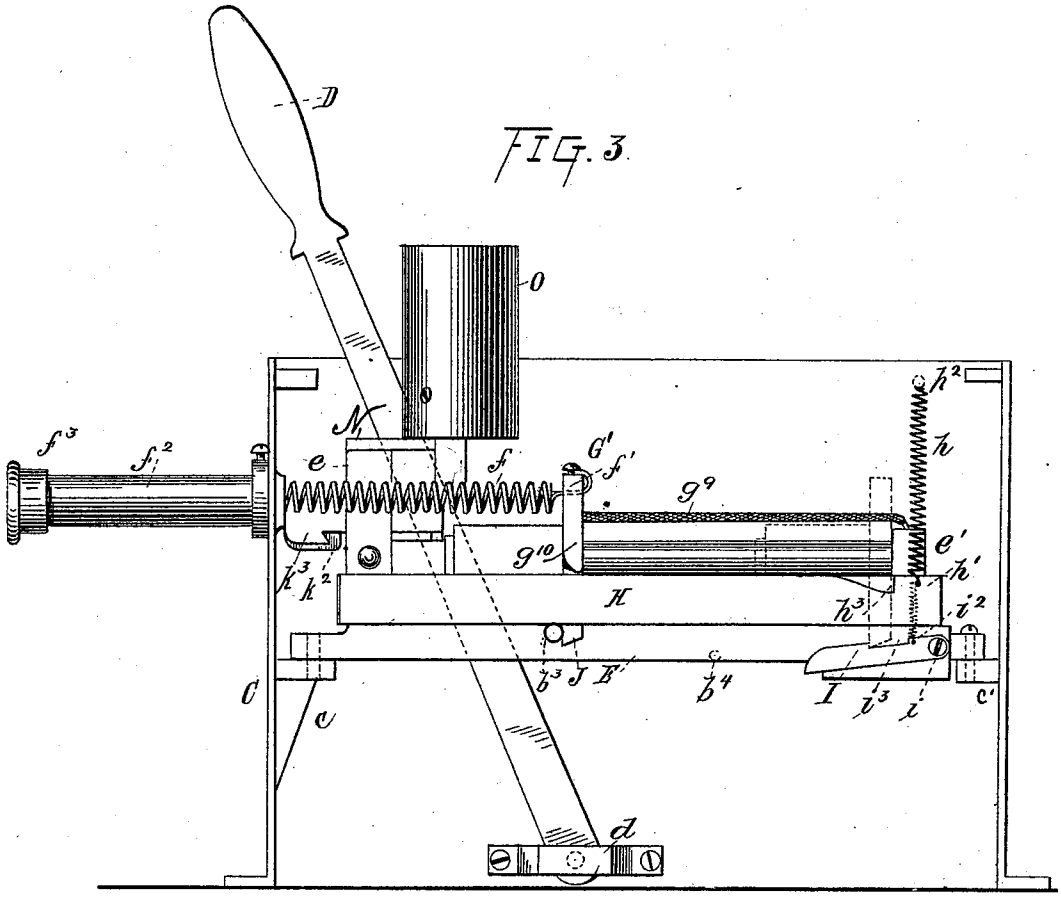
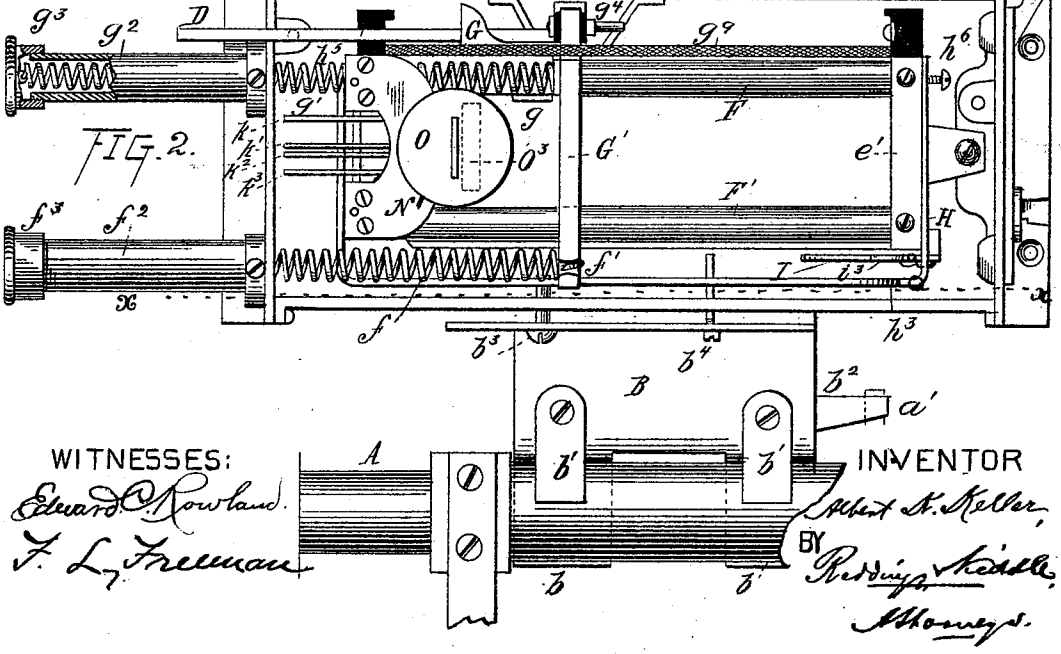


FIG. 2.



WITNESSES:
Edward C. Rowland.
F. L. Freeman.

INVENTOR
Albert K. Keller,
BY Redding & Riddle
Attorneys.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 3.

A. K. KELLER.

ATTACHMENT FOR OPERATING PHONOGRAPHS.

No. 518,190. Patented Apr. 10, 1894.

FIG. 4.

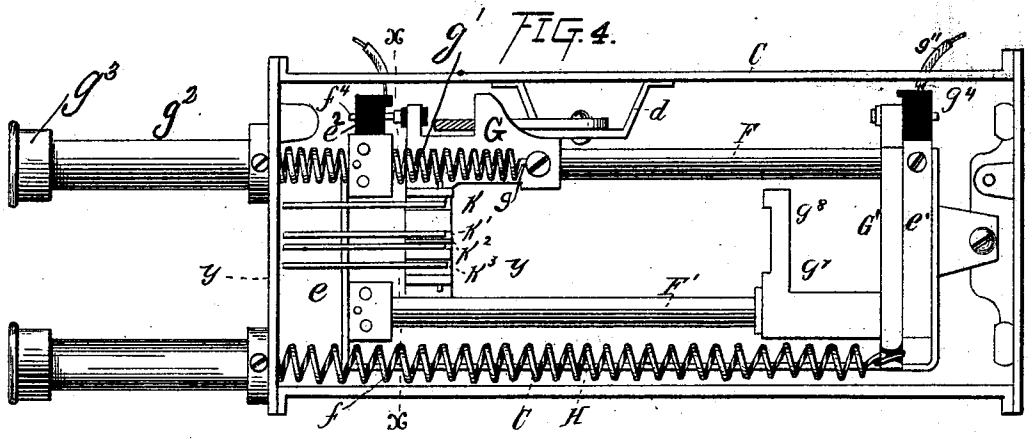


FIG. 5.

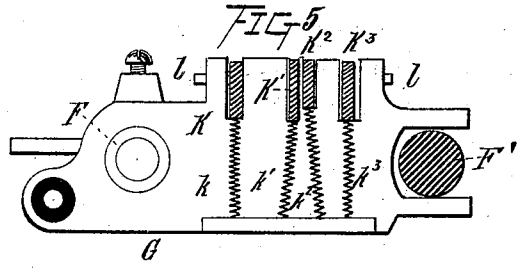


FIG. 7.

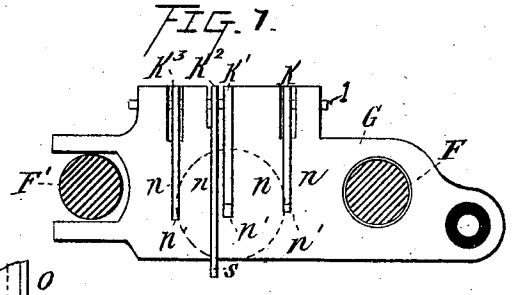


FIG. 6.

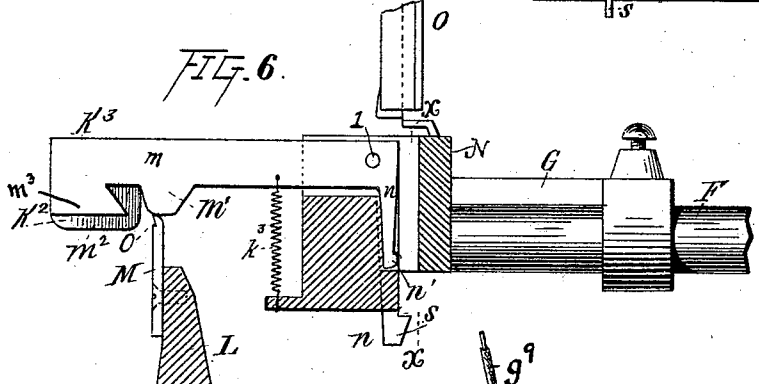
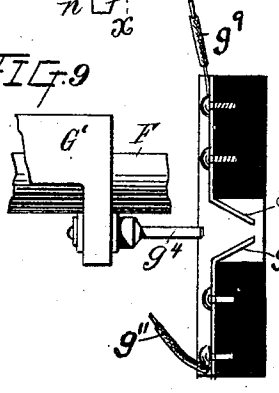


FIG. 9.



WITNESSES:
Edward C. Rowland
F. L. Freeman

INVENTOR
Albert K. Keller
BY
Redding & Riddle
ATTORNEYS

THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 4.

A. K. KELLER.

ATTACHMENT FOR OPERATING PHONOGRAPHS.

No. 518,190. Patented Apr. 10, 1894.

FIG. 10.

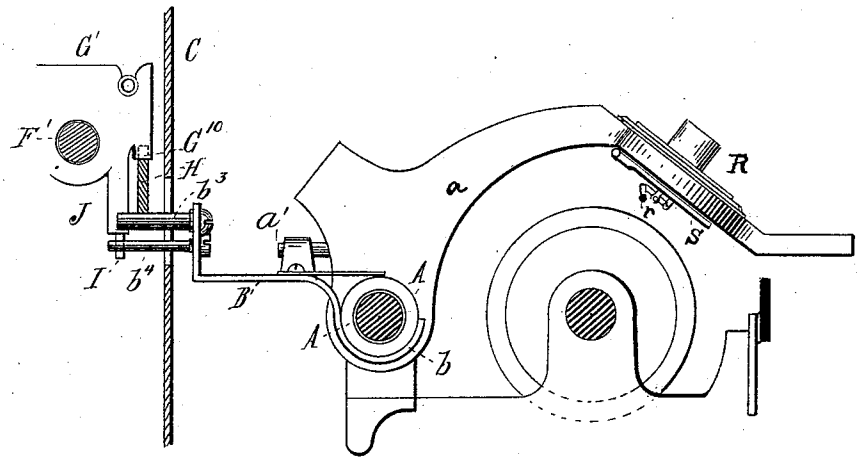


FIG 11

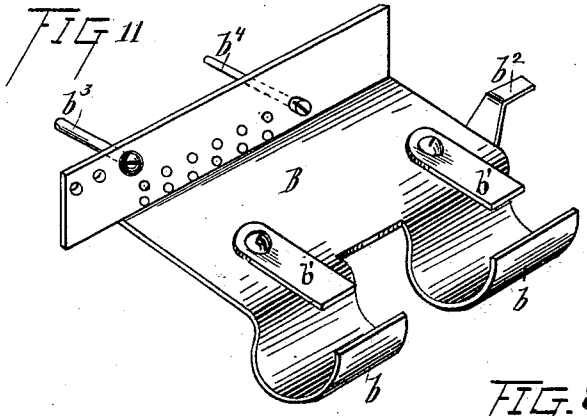
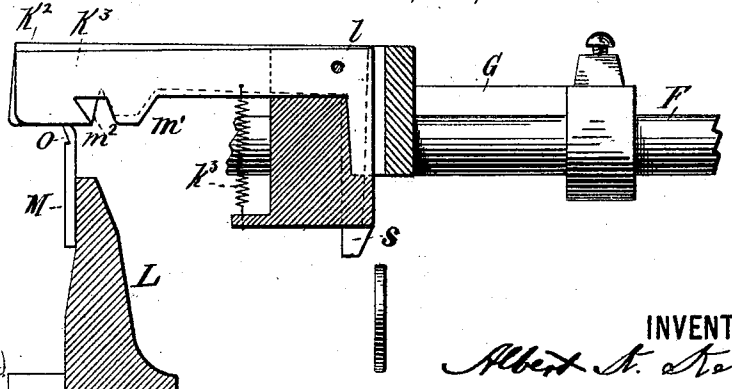


FIG. 8



WITNESSES:
Edward C. Rowland
F. L. Freeman

INVENTOR
Albert K. Keller,
BY
Redding & Riddle
ATTORNEYS

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT K. KELLER, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AUTOMATIC PHONOGRAPH EXHIBITION COMPANY OF NEW YORK.

ATTACHMENT FOR OPERATING PHONOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 518,190, dated April 10, 1894.

Application filed January 31, 1891. Serial No. 379,824. (No model.)

To all whom it may concern:

Be it known that I, ALBERT K. KELLER, of New York city, in the county and State of New York, have made a certain new and useful invention relating to Attachments for Operating Phonographs, of which the following is a specification.

The object of my invention is to control the operation of phonographs, graphophones or other talking machines through the medium of a coin, after the manner of what are known as "vending machines," and my invention is particularly set forth and claimed hereinafter.

In the accompanying drawings, forming a part hereof, I have shown one form of mechanism embodying my invention, in which—

Figure 1 is a top plan view showing the phonograph inclosed in a case, with glass cover, connected with a machine or attachment embodying my invention, which also is inclosed in the same case, (and is indicated by dotted lines) and showing the preferred arrangements of the two machines with relation to each other. Fig. 2 is a top plan view of said attachment, showing the manner of its connection with the phonograph. Fig. 3 is a side view in elevation on line *x—x* of Fig. 2. Fig. 4 is a top plan view showing the position of the parts of a portion of the attachment after the lever has been thrown over and returned, and the phonograph is talking. Fig. 5 is a sectional view of the locking levers taken through line *x—x* of Fig. 4. Fig. 6 is a sectional side view of the locking mechanism taken through line *y—y* of Fig. 4, and showing the position of the locking levers when the attachment is locked. Fig. 7 is an end view of the levers of the locking mechanism taken on line *x—x* of Fig. 6. Fig. 8 is a sectional side view of the locking mechanism taken through line *y—y* of Fig. 4, and similar to Fig. 6, but showing the position of the locking levers when the attachment is released. Fig. 9 is a detail view of one of the electrical contacts, which are on each end of the frame of the attachment and with which the plugs on the cross-heads or carriages of the attachment make connection to close the circuit to the battery and motor which operate the phonograph. Fig. 10 is a side view taken on line *x—x* of Fig. 1, showing the means of connecting the phonograph arm with the attachment, and showing the reproducer as raised off the phonogram, and held in that position by the attachment, as is the case when the phonograph arm is in its normal position, and the phonograph is at rest. Fig. 11 is a perspective view of the plate or means by which the phonograph arm is directly connected with the attachment.

The phonograph (see Fig. 1), erected upon a stand or placed in any convenient manner, is preferably operated by an electrically driven motor connected with an electric battery and may, if desired, be inclosed in a box or case, having a glass cover, as shown, to expose the phonograph to view, within which case is also placed, by preference, the attachment embodying my invention, the tube connected with the reproducer passing through an opening in the case to within reach of the listener. This case keeps the dirt and dust out of the phonograph and attachment, and is locked so as to prevent tampering with the machines. The construction shown in the extreme left hand of Fig. 1 is a top view of the governor and brake forming a portion of the driving mechanism, which forms no part of my invention.

As shown in Fig. 1, the attachment is preferably located behind the phonograph, and is directly connected with the sleeve A on the rod A′ of the phonograph, over which rod this sleeve travels, and is free to move, the said sleeve carrying the phonograph arm *a*.

B. is an L shaped plate, (see Figs. 2 and 11) which on the edge of its horizontal portion has two downwardly curved tongues, *b b*., upon, or in which, the sleeve A rests, it being secured therein by two small plates *b′ b′*, which are fastened to the said horizontal portion of the plate B, after tongues *b b* have been placed under the sleeve, in order that the plate B and sleeve A shall move together, as will be hereinafter explained. On the outer right hand side of this plate B there is a projection b^2, which rests upon the projection *a′* on the rear of the phonograph arm, and lifts the reproducer when the plate B is lowered, and permits it to descend on the phonogram

when the plate B is raised. Through the vertical portion of the plate B are bored a number of holes, as shown, in two of which are inserted pins b^3 and b^4, the functions of which will be hereinafter set forth.

C is a metal box having projections or supports c c', on the inside, upon which rests the mechanism of the attachment.

D is a hand or shifting lever pivoted at its lower end at d, to the bottom of the box C.

E is a cast frame of metal which rests upon and is secured to the supports c c', uniting it to the box C, and has, forming part of it, an upright e e' on each end.

F F′ are two guide rods that pass through the uprights e e', across from the one to the other, and are firmly held therein.

G G′ are two movable supports, carriages or cross-heads which travel on the guide rods F F′, the cross-head G being behind or to the left of cross-head G′, both of the cross-heads traveling on both guide rods F F′, and being caused to move in one direction by the action of the lever D, and in the other direction by the action of the springs or weights or other suitable devices. Secured to the cross-head G at g is the spiral spring g', and g^2 is a spring guide which incloses one end of this spring, there being screwed on to the outer end of this guide an adjustable cap g^3, to which the spring is secured, to hold it in place within the guide, and for the purpose of shortening or lengthening it to increase or decrease its tension. A similar spiral spring f is secured at f' to the cross head G′, and is also contained in a guide f^2, the other end of this spring being attached to an adjustable cap f^3 screwed onto the guide f^2, to shorten or lengthen the spring f, and thereby increase or decrease its tension in the same manner as with spring g'. The carriage or cross-head G′ carries a metal contact plug or electrode g^4 (which is insulated, however, from the cross-head), so that when it is forced over by lever D, in the manner to be hereinafter set forth, it will pass between the contact points g^5 g^6, (see Fig. 9) which are insulated from each other and from the support e', to which they are attached, thereby closing the circuit at that point between the electric battery and motor (not shown), which operates the phonograph, which circuit will be hereinafter called the motor circuit. The cross-head G carries a similar metal contact plug or electrode f^4 (which is also insulated from this cross-head), which plug passes between the contact points or electrodes at e^2 on the upright e, similar to those on e', which electrodes are also insulated from each other and from the upright e, closing the circuit at that point and thereby completing the motor circuit, and causing the phonogram to revolve, since the motor is directly connected with one of the contacts on the left hand side of the attachment, with which the plug f^4 makes contact to close the circuit at that point, and the opposite contact on the same side being connected with one of the contact points, g^5, g^6, by wire g^9, the other of said contacts g^5, g^6 being connected to the battery by the wire g^{11}. The cross-head G′ is also cast with an inwardly extending arm g^7, and an upright g^8, having the inner side of the said upright g^8 cut away the exact size of the coin, which is intended to release the attachment.

H is a rocking bar having its ends bent at right angles and pivoted to the sides of the box C, or preferably to the uprights e e', at h^5, h^6, so that it can move up and down to raise and lower the phonograph arm. It is, however, prevented from falling by means of a spring h, which is connected with it at h', and with the box C at h^2, this bar H being prevented from moving or being carried up beyond the desired point by the spring h, by means of a lug or projection g^{10}, on the end of the cross-head G′ (see Fig. 3) against which lug or projection the upper edge of the bar H bears. The outer or right hand end of the bar H, on its upper edge, is cut away at h^3. Immediately below this cut away portion h^3 of the bar H is a pawl I, pivoted at i to the frame E, and to it is connected near its pivotal points a light spring i^2, the tendency of this spring being to draw the pawl upward (the other end of this spring being secured to the upright e'). The upper edge or surface of this pawl I is notched or indented at i^3, as shown in Fig. 3. The cross-head G′ also has a lug or projection J, which extends downwardly below the lower edge of the bar H, or, as will be readily understood, this cross head may be cast of one piece with its side edge made straight, but mortised or recessed so as to form the projection g^{10}, against which the bar H rests, to prevent it from rising, as before stated, the lug or projection J also forming a part of this casting. The lower end of the lug or projection J is beveled, as shown, so that when it moves to the right it will easily depress the pawl I, by riding over the inner rounded end thereof, and be prevented from returning by the rising of the said pawl, whereby the indent i^3 therein will engage therewith and hold it. There are many other devices which may be employed for this purpose. The lever D passes up alongside the back of the box C, and moves lengthwise of the box through a slot in the top thereof, cut out for this purpose. It also passes along the side of the cross-head G, through a space made in the cross head (shown in Fig. 4).

Referring now to the pin b^3, which, as before stated, passes through the plate B that connects the attachment to the phonograph— this pin b^3 projects through the plate and through a slot or opening in the side of the box C, so that the rocking bar H rests upon it; therefore when the bar H is down in its normal position, and prevented from rising by the lug g^{10} on the cross head G′, that is, when the machine is at rest and in its normal position, it holds the phonograph arm, carrying the diaphragm with the recording point

thereon, *i. e.* the reproducer in a raised position and out of contact with the phonogram, and this is the preferred position of the phonograph arm and diaphragm when the machine is at rest, so as to prevent the needle or recording point on the diaphragm from resting upon the phonogram and marking and destroying the record registered upon it. When the bar H rises, the pin b^3, plate B, and lug a' on the rear of the phonograph arm will rise with it, and the other end of the phonograph arm a will fall and lower the reproducer into its proper position on the phonogram, so as to enable the phonograph to talk when the phonogram is rotated, it being understood, of course, that the rise and fall of this phonograph arm has been previously determined and adjusted with reference to the phonogram, so that the movement of the rod H and plate B will be within the predetermined limits of the adjustment.

As will be seen by Fig. 11 the vertical portion of the plate B is somewhat longer than the body of the plate, and has several openings in it. The purpose of these openings or holes, through one of which, as shown, the pin b^3 passes, is to enable the attachment to be adjusted so that the phonograph will begin to talk as soon as the motor begins to run, that is, since the record on the phonogram may not begin at its extreme end, and in order that the listener may not have to wait for the arm to travel any distance to the point where the record begins before the talking commences, the pin b^3 is inserted into one of the openings or holes, according to the point or place where the record registered on the phonogram begins, for as is hereinafter explained, the plate B, and with it the phonograph arm, is carried to the left, that is from the end to the beginning of the record, by the engagement of the lug J with the pin b^3. The other openings in this portion of the plate B, through one of which the pin b^4 is inserted, are for the purpose of regulating how much of the record registered upon the phonogram it is desired shall be heard, and since, as will be readily understood, this pin releases the pawl that holds cross-head G', if it is placed at only a short distance from the outer end of the plate B it will the sooner reach the pawl and release it, thereby stopping the machine by breaking the circuit at the contact points g^5 g^6.

I do not limit myself to the means shown and described for raising and lowering the phonograph arm, nor to the adjustable device shown and described for regulating how much of the record registered on the phonogram shall be heard, nor to the means shown and described operated by the phonograph itself for automatically breaking the motor circuit and raising the phonograph arm so as to enable the parts to be returned, since other devices which accomplish the desired results can be employed for the purpose mentioned without departing from the spirit of my invention.

The locking mechanism which I preferably employ to lock the attachment, and which can only be released after the insertion into it of a coin, is shown in detail in Figs. 5, 6, 7 and 8, and consists of one or more elbow levers or triggers (four being shown in the drawings), K K', K^2 K^3. These levers are connected with the cross head G, and are pivoted at their elbows on a spindle or shaft l, the ends of which shaft bear in holes drilled in projections forming a part of the cross head G (see Fig. 5). The levers K K' K^3 are exactly alike, and the arms n on each one of them has a rounded lug or projection n' on its lower end. The arm n of the lever K^2 is a little longer than the arms of the other levers and terminates in the projection or stop s at the lower end, on which the coin that has been dropped into the machine falls. To each of the levers between the pivotal point and their outer ends is attached a spring k, k', k^2, k^3, the tension of which is downward, the lower end of each of these springs being secured to the carriage or cross head G.

L is a support upon which rises or is screwed a plate or stop M, (or these could be cast in one piece,) with which the rear or outer ends m of said levers are adapted to engage, and this stop has its upper edge notched on one side at o, and the other side made rounded, it extending under all of the levers K K', K^2 K^3, or some other form of fixed stop could be used. As will be seen by the drawings (Fig. 8), each of said levers has a projection m' formed on its under side, the lower edges of which are slightly rounded, and these projections rest upon the top of the stop M, Fig. 6 showing the position of the levers resting on the stop M, in the manner which they do when the machine is locked. The extreme outer ends m of the levers K K', K^3 are provided with projections m^3 on the left of the projections m' so that when the said levers fall or are drawn by the springs k k', k^3, and are drawn over to the right, the acute forward edges of the said projections m^3 will engage with the stop M and lock the cross-head G, which is thereby prevented from being moved. The lever K^2 also has a projection m^2 on its under side in the same position as the projections m^3 on the levers K K' and K^3, but this projection m^2 as shown in Fig. 6, is a little longer or wider than the projections m^3 on the other levers, and extends slightly below them and slightly in advance of them, and has both its inner and outer edges rounded. To the top of the upright e and over these levers, when the cross head G is in its normal position, is screwed or otherwise secured a plate N upon which rests the cylindrical receptacle O, into which the coin is first dropped, and through which it passes, and this receptacle is so placed that

the coin will pass through it, preferably in a straight line, so as to fall directly upon the stop or lug *s* on the bottom of the lever K^2.

The operation of the machine is as follows: A coin, say a five cent nickel piece, is dropped into the slot in the cylindrical receptacle O, and will pass therethrough down in front of the levers K K′ K^2 K^3 and between them and the space cut out in the inward extension g^8 of the cross head G′, and will fall directly upon the lug or projection *s* on the bottom of the lever K^2, and will also come in contact with the lugs *n′* on levers K, K′, K^3. The lever D is then grasped by the hand and drawn to the right, and first strikes the cross-head G which, in turn, strikes cross-head G′, they being both carried in this manner by the lever D to the extreme right of the rods F F′. The coin that is interposed between the arm g^8 of the cross head G′ and the levers K K′ K^2 K^3, if it be the proper coin, that is, of the requisite diameter and thickness, will nearly fill the space between the levers and the arm g^8, permitting a very slight movement, if any, of the levers, independent of the movement of the cross head, and on moving the lever D, the lugs *n′* on the arm *n* of the levers K K′ K^3 will press against this coin, and the outer ends of the levers K K′, K^3 will ride over the stop M, that is, the inner arms of the levers K K′ K^3 are prevented from moving upward by the interposed coin, but, on the contrary, are forced backward, thereby preventing the outer ends *m* of these levers, and the projections m^3 thereon from falling and engaging the stop M, which would lock the attachment. At the same time the outer end of the lever K^2, upon the inner end of which, on the lug or stop *s* thereof, the coin rests, will also ride over the stop M, the outer end *m* of the lever moving slightly upward as well as forward in riding over the said stop M. The inner end *n* thereof is thereby moved slightly backward, but sufficiently to drop or throw the coin into the money box, since the upright g^8 on the cross-head G′ will have been moved away from it, as above stated. As will be readily seen, to unlock the attachment, all three of the levers K K′ K^3 must be held in the position shown in Fig. 6, which is accomplished by interposing the proper coin, as, if for any reason, one of them did not rise over the stop M, the attachment would be locked, that is, the coin must be a solid coin, for, even though it be of the requisite thickness and diameter, for if it had a hole in the center, like a washer, it would not trip one of the levers, since the lug on the bottom of the arm *n* of one of them would pass through the center hole thereof, and the arm *n* of that particular lever would, therefore, not be prevented from moving forward and upward, which would cause the projection m^3 on the outer end of that lever to drop behind the stop M. As will be noticed the arm of the lever K^2 upon which is the stop *s*, on which the coin strikes, is placed on one side of the center, hence, if the coin inserted be of a too small diameter, even though it be solid, when it strikes upon the stop *s* on the lever K^2, it will be thrown to the opposite side, and therefore would not come in contact with the outer lever on the other side, which lever would still lock the machine, for the reasons stated. Or, if the coin were too thin it would not prevent the projection m^3 on the outer ends of the levers K K′ K^3 from dropping down and engaging the notch on the stop M and locking the machine, and this would result in such case by merely a slight movement of the lever D, that is when the levers are in the position shown in Fig. 6, and when no coin, or one that is too thin, is dropped in the machine, a slight movement of lever D, striking against the cross head G, will move these levers K K′ K^2 K^3 sufficiently to the right to cause the projections *m′* on the under side of their outer ends *m* to slide down off the top of stop M (instead of riding over it) and the projections m^2 m^3, by their own weight, and also by the tension of the springs *k k′* k^2 k^3, to drop down and strike against the stop M, thus locking the machine. But if a proper coin be inserted and rests on the lug *s* of the arm *n* of the lever K^2 and the lever D be then moved, since, as before stated, the arms *n* of the levers K K′ K^3 cannot therefore move to the right and upward, independent of the movement of the cross head G, the outer ends of these levers cannot drop, but the projections m^2 and m^3 thereon will slide or ride over the top of stop M, thereby releasing the attachment, and the lever K^2 carrying the coin will be tripped, and the coin emptied, (see Fig. 8,) into the money box (not shown), it taking only a slight movement of the lever K^2 to throw the money out of the machine and into the money-box, and this is so particularly when an improper coin is inserted, which will always be emptied from the machine. I do not, however, limit myself to the use with an attachment embodying my invention of a locking and releasing device of the specific construction shown and described, but any other suitable locking and releasing device may be employed by me therewith without departing from the spirit of my invention, but the device shown and described efficiently accomplishes the desired results. As, of course, will be readily understood, when the coin dropped into the machine is not of proper thickness, and the lever D is then moved in an attempt to release the locking mechanism so as to hear the phonograph, the lever will strike the cross head G which carries the levers K K′ K^2 K^3, and which will thereby be moved slightly to the right, causing the projections *m′* on the outer ends of these levers, (which projections rest upon the stop M,) to be also moved a little to the right, whereby the projections *m′* will slide off the upper rounded edge of stop M, being assisted in

so doing by the springs k k' k^3, which draw them down, and the projections m^3, will strike against the stop M and be held thereby, since the coin is not thick enough to fill to the desired extent the interstices or slots formed by the upright g^8 on the cross-head G′ and the lugs n' on the arms n of the levers K K′ K³, the arms n being thus left free to move upward and forward unimpeded a short distance, but sufficient to drop the outer ends of these levers, as just explained, and prevent them from riding over stop M. At the same time, the outer ends of the lever K² will also have fallen, since the projection m' on its under side will have slid off the stop M, but as the projection m^2 thereon is a little wider than the projection m^3 on the other levers, and extends a little below them, it will attempt to ride over the stop M, thereby raising arm m of the said lever K² and lowering or drawing back its other arm n, throwing the bad coin in the money box. The cross head G is released, however, by releasing the locking mechanism through the medium of a proper coin, as above set forth, thus permitting the lever D to force it together with cross head G′ which is in advance of it, to the right until the projection J on the cross-head G′ strikes the pawl I, upon or over which it rides, thereby depressing said pawl, which is again raised by the spring i^2 the indent i^3 in the pawl engaging the said projection. At the same time the plug g^4 on the cross-head G′ is inserted between the contacts g^5 g^6, closing the circuit at that point, the plug being held therein by the engagement of the pawl I on the projection J, which engagement also holds the cross-head G′ against its return movement, as will be readily understood. The movement of the cross-head G′ to the right expands spring f, thereby storing up power to return this cross-head G′ when the projection J is released from the pawl I. As the cross-head G′ moves along, the lug or projection g^{10}, forming part of it, rides on the upper edge of the bar H, and when it reaches the end of this bar H, where the same is cut away, the bar H will rise, being drawn up by the spring h, at the same time lowering the reproducer into a position for talking, since the pin b^3 on the plate B, as before explained, is in direct contact with the under side or edge of this bar H, which is pivoted at h^5 h^6 on the uprights of the attachment, that is, when this rocking bar moves up the pin b^3, in the plate B, also moves up, and the reproducer on the phonograph arm is lowered. The phonograph does not yet begin to talk, for the motor which drives it has not commenced to run since the electric circuit from the battery to this motor is broken at the other side of the attachment, for the plug f^4 on the cross-head G has been withdrawn from the contacts at the starting point. The lever D is now returned to its original position, or the position which it had before the coin was inserted, being pushed by the cross-head G, which is drawn back on the guide rods F F′ by the spring g' attached to it, which has been expanded by the previous motion of the lever D, and the levers K K′ K² K³ traveling back with the cross head G will ride over the stop M and lock the machine again, and at the same time the plug f^4, carried by this cross-head G will be inserted between the contacts in the upright on that side of the attachment, thereby closing the circuit at that point and completely closing the motor circuit, and starting the motor, which causes the phonograph arm to travel and the phonograph to talk. Thus it will be seen that the electric circuit is broken at two points, one on each side of the frame of the attachment, between which points the lever D travels, that when the attachment is in its normal position, the circuit is always broken at one point; that the motion of the lever D in one direction closes the circuit at one point, stores up power to break the circuit at that point at the proper time or when it is desired the phonograph shall cease to talk, and at the same time lowers the reproducer into position in relation to the phonogram for talking; and that by this movement of the lever D the circuit is broken at the starting point, the circuit at this point being, however, completed by the return movement of the lever to its original position, thereby completely closing the motor circuit and at the same time locking the attachment before the phonograph has begun to talk. As will be seen in the drawings, the pin b^4 is placed in advance of the pin b^3, and this distance in advance is determined according to how much of the phonograph record it is desired shall be heard, the pin b^4 being also placed slightly below the pin b^3, (see Fig. 11) and as the phonograph arm carrying the reproducer R moves along the phonogram and the machine continues to talk, it carries the plate B with it, and of course the pins b^3 b^4, until the pin b^4 strikes the pawl I (see Figs. 2, 3 and 10) depressing or tripping it, thereby releasing the bar J and cross head G′, whereupon this cross-head is drawn back or returned to its original position by the spring f. By the return motion of the cross-head G′ the plug g^4 is withdrawn from the contacts g^5 g^6 and the circuit is broken, shutting off the electric current and stopping the motor, and the phonograph ceases to talk. As will be understood when the cross-head G′ returns, the projection or lug g^{10} thereon rides up over the indent h^3 in the outer end of bar H, which is thereby depressed, raising the reproducer off the phonogram, in the manner before explained, and this before the phonograph arm has commenced to return, so that in returning the needle or point r on the diaphragm S of the reproducer R will not cut or destroy the record registered upon the phonogram, and this raising of the phonogram arm is accomplished through the medium of the pin b^3, which is attached to the phonograph plate B, and is in direct con-

tact with the bar H, all as before explained, at the same time cross-head G′ being brought back by the spring *f* to its original position directly in advance of the cross-head G, as just stated. These operations occur in a very short period of time, almost simultaneously, and as soon as the phonograph arm has traveled to the end of the movement, or to any desired point of its forward movement, the pawl I is caused to be tripped by the pin b^4, the cross-head G′ is at once released and carried back by spring *f* to its original position; the phonograph arm is raised, the circuit broken, and the phonograph stops; but the phonograph arm must also be returned to its original position, and this is accomplished by means of the pin b^3 of the plate B, which is struck by the rod J of the cross-head G′, whereby the plate B and with it the phonograph arm is carried or forced back to its original position, and the machine is ready to be operated again by another coin, as set forth. The pin b^4, which operates pawl I, can be so adjusted that with the movement of the phonograph arm, it shall release the pawl, break the electric circuit, lower the bar H, and raise the phonograph arm, as before explained. Thus it will be seen that this attachment will not operate except upon the insertion of the coin for which the machine has been adjusted, and although released after the proper coin has been inserted into it, the phonograph will not begin to talk until the lever has been moved and returned to its original position and the attachment locked again—ready for the insertion of another coin, thereby preventing a repetition of the reproduction without the payment or insertion into the machine of another coin.

From the foregoing it will also be seen that a coin controlled, or coin actuated machine or attachment for throwing a phonograph into operation, or for automatically operating a phonograph, embodying my invention, comprises the features which are specified in the following claims.

I believe that I am the first to conceive and produce the broad fundamental combinations between a phonograph, coin controlled mechanism, and mechanism to shift or raise or lower the reproducer which are necessary to the production of coin controlled phonographs. And I believe that I am the first to combine such coin controlled mechanism with a phonograph that is operated by an electric motor, and also the first to include the motor in a circuit that can be opened at two points in the operation of the coin controlled phonograph, and also the first to open and close such motor circuit at two points in the manner herein described.

In developing this broad invention I have made numerous specific inventions. In order to cover my invention completely, I have filed three applications, of which this is the generic application, and the other two specific applications. They are application serially numbered 381,404, filed February 14, 1891, for improvements in machines for operating phonographs, and application serially numbered 384,477, filed March 10, 1891, for improvements in machines for operating phonographs.

While I have shown and described my invention as applied to phonographs as the mechanism to be thrown into operation by a machine embodying my invention, yet I do not limit my invention to its use with phonographs or talking machines, nor do I mean to limit my invention to the specific construction of a coin controlled machine or attachment for throwing phonographs into operation, embodying my invention, heretofore described and shown in drawings, nor to the particular construction of devices, separately or in combination, forming a part thereof, nor do I limit my invention to its use with phonographs *per se*, since I use the word phonograph throughout this specification, and the claims forming a part of it, as a generic term, and intend to include thereby all talking machines, such as the graphophone and the phonograph-graphophone, but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a coin controlled phonograph, of means, released by the phonograph, to shift the reproducer, substantially as described.

2. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means for raising and lowering the reproducer, and means released by the phonograph to shift the reproducer, substantially as described.

3. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means operated by the phonograph to stop the phonograph, and means to shift the reproducer, substantially as described.

4. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means for raising and lowering the reproducer, and means operated by the phonograph to stop the phonograph, substantially as described.

5. The combination, with a phonograph, of a coin controlled mechanism for lowering the reproducer and throwing the phonograph into operation, and means operated by the phonograph to raise the reproducer and stop the phonograph, substantially as described.

6. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means operated by the phonograph to stop the phonograph, and means released by the phonograph to shift the reproducer, substantially as described.

7. The combination, with a phonograph, of a coin controlled mechanism, means for raising and lowering the reproducer, means for moving the reproducer along the phonogram, and means for shifting the reproducer, said

raising, lowering, moving and shifting means, all operating automatically in proper sequence upon each operation of the coin controlled mechanism, substantially as described.

8. The combination, with a phonograph, of a coin controlled mechanism for setting it into operation, and storing power to shift the reproducer, the said coin controlled mechanism being operated by hand, and means automatically operated by the phonograph for releasing the power and shifting the reproducer, substantially as described.

9. The combination, with a phonograph, of a coin controlled mechanism, means for lowering the reproducer, and means for throwing the phonograph into operation, both of the two last named means operating in the order stated, upon each operation of the coin controlled mechanism, means for lifting the reproducer, and means for shifting the phonograph arm, substantially as described.

10. The combination with a phonograph, of a coin controlled mechanism, means for lowering the reproducer, means for moving the reproducer along the phonogram, both of said last named means operating in the order stated upon each operation of the coin controlled mechanism, means for lifting the reproducer, and means for shifting the reproducer, both of said means being thrown into operation by the phonograph, in the order stated, substantially as described.

11. The combination, with a coin controlled phonograph, of means for shifting the reproducer, and means operated by the shifting means for raising the reproducer, substantially as described.

12. The combination, with a phonograph, of a device for raising and lowering the reproducer, and coin controlled mechanism operating on said device to raise and lower it, and thereby lower and raise the reproducer, substantially as described.

13. The combination, with a phonograph, of a raising and lowering device connected with the reproducer, and means normally held locked, and adapted to be released by a coin to operate on said device to raise and lower it, and thereby lower and raise the reproducer, substantially as described.

14. The combination, with a phonograph, operated by a motor, of a coin controlled mechanism for starting and stopping the motor, and mechanism for raising and lowering the reproducer, substantially as described.

15. The combination, with a phonograph operated by a motor, of a circuit breaker in the motor circuit, opened by the reproducer at the end of the record, and means for closing the circuit at the said circuit breaker when the phonograph is to be operated, substantially as described.

16. The combination, with a phonograph, operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing said circuit, and means operated by the phonograph to open said circuit, substantially as described.

17. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism for closing the motor circuit, means operated by the phonograph to open said circuit, and means for raising and lowering the reproducer, substantially as described.

18. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate the phonograph, means operated by the phonograph to open the circuit and stop the phonograph, and means for shifting the reproducer, substantially as described.

19. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate the phonograph, means operated by the phonograph to open the circuit and stop the phonograph, means for shifting the reproducer, and means for raising and lowering the reproducer, substantially as described.

20. The combination, with a phonograph, operated by a motor and having its motor circuit normally open, of coin controlled mechanism to close the motor circuit, and lower the reproducer, substantially as described.

21. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism to close the circuit and lower the reproducer, and means operated by the phonograph to open the circuit and raise the reproducer, substantially as described.

22. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism for closing the circuit, and throwing the phonograph into operation, means for raising and lowering the reproducer, means operated by the phonograph to open the circuit and stop the phonograph, substantially as described.

23. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of means for lowering the reproducer, means for closing the motor circuit, both said means being coin controlled, means for opening the motor circuit, means for lifting the reproducer, and means for shifting the reproducer, substantially as described.

24. The combination, with a phonograph, operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing said circuit, means for lowering the reproducer, and means operated by the phonograph to open said circuit and raise the reproducer, substantially as described.

25. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a coin controlled mechanism for closing said circuit, means for low-

ering the reproducer, means operated by the phonograph to open said circuit and raise the reproducer, and means to shift the reproducer, substantially as described.

26. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer in a raised position, coin controlled mechanism to lower the reproducer and close the motor circuit, and means operated by the reproducer to open the motor circuit and raise the reproducer, substantially as described.

27. The combination, with a phonograph operated by a motor, of a coin controlled mechanism for starting and stopping the motor, a shifting lever, and an automatic lifting device for the reproducer of said phonograph, substantially as described.

28. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means operated by the coin controlled mechanism for closing the motor circuit, means for raising and lowering the reproducer, means for moving the reproducer along the phonogram, means for opening the motor circuit, and means for shifting the reproducer, said raising, lowering, moving, shifting and circuit opening means all operating automatically in proper sequence upon each operation of the coin controlled mechanism, substantially as described.

29. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means for lowering the reproducer, and means for closing the motor circuit, both of the two last named means operating in the order stated, upon each operation of the coin controlled mechanism, means for lifting the reproducer, means for opening the motor circuit, and means for shifting the reproducer, substantially as described.

30. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means for lowering the reproducer, means for closing the motor circuit, both of said last named means operating in the order named upon each operation of the coin controlled mechanism, means for lifting the reproducer, means for opening the said motor circuit, and means for shifting the reproducer, all three of said means being thrown into operation by the phonograph, substantially as described.

31. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked, and is released by a coin, to throw the phonograph into position for operation, and means to relock said mechanism and close the motor circuit simultaneously, substantially as described.

32. The combination, with a phonograph operated by a motor and having its moto circuit normally open, of mechanism which is normally held locked and is released by a coin, and means to lower the reproducer, lock the said mechanism again and close the motor circuit before the phonograph has commenced to operate, substantially as described.

33. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer from contact with the phonogram, coin controlled mechanism to hold the phonograph locked, and means to close the motor circuit and lower the reproducer, substantially as described.

34. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer from contact with the phonogram, coin controlled mechanism to hold the phonograph locked, means to close said motor circuit and lower the reproducer, and means to hold said motor circuit closed, which last named means are released by the phonograph to break said motor circuit, and means operated by the phonograph to stop the phonograph and to raise the reproducer at any desired point in the forward travel thereof, substantially as described.

35. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, and means to lock the attachment again and close the motor circuit before the phonograph begins to operate, substantially as described.

36. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of mechanism which is normally held locked, and is released by a coin to throw the phonograph into position for operating, and means to relock said mechanism and close the motor circuit simultaneously, substantially as described.

37. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, means to lock the attachment again and close the motor circuit before the phonograph begins to operate, and means operated by the phonograph to raise the reproducer and open the motor circuit, substantially as described.

38. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, means to lock the attachment again and close the motor circuit before the phonograph begins to operate, means to raise the reproducer and open the motor circuit, and means to shift the reproducer, substantially as described.

39. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a mechanism which is normally held locked, and is released by a coin to throw the phonograph into position for operation, means to relock said mechan-

ism and close the motor circuit simultaneously, means operated by the phonograph for opening the motor circuit, means for lowering and raising the reproducer, and means for shifting the reproducer, substantially as described.

40. The combination, with a phonograph, of a motor for operating it, in a circuit which can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of the said points and close it at the other point, means to hold the circuit closed at the second point, means to throw the phonograph in position to operate, and means to simultaneously close the circuit at the first point and relock the attachment, substantially as described.

41. The combination, with a phonograph, of a motor for operating it in a circuit that can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, and means operated by the phonograph to open the circuit at the second point, substantially as described.

42. The combination, with a phonograph, of a motor for operating it in a circuit which can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open the circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, means operated by the phonograph to open the circuit at the second point, means for raising and lowering the reproducer, and means for shifting the reproducer, substantially as described.

43. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened and closed at two points for operating the phonograph, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of said points, and to close it at the other point, means to hold the circuit closed at the second point, means to lower the reproducer, and means to simultaneously close the circuit at the first point and lock the attachment, substantially as described.

44. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened or closed at two points for operating the phonograph, an attachment which is normally held locked and is released by a coin to open said motor circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to lower the reproducer, means to open the motor circuit at the second point, and means to lift the reproducer off the phonogram, and means to shift the reproducer, substantially as described.

45. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened and closed at two points for operating the phonograph, an attachment which is normally held locked, and is released by a coin to open the motor circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to lower the reproducer on the phonogram, means to open the motor circuit at the second point, means to lift the reproducer, and means to shift the reproducer, said circuit opening, lifting and shifting means being operated by the phonograph, substantially as described.

46. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, and adjustable means operated by the phonograph to stop the phonograph at any desired point, substantially as described.

47. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate said phonograph, and adjustable means operated by the phonograph to the open motor circuit and stop the phonograph at any desired point, substantially as described.

48. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of coin controlled mechanism for closing said motor circuit, adjustable means operated by the phonograph to open said motor circuit and stop the phonograph at any desired point, and means also operated by the phonograph to raise the reproducer, substantially as described.

49. The combination, with a phonograph operated by a motor, of a rocking bar which engages with the arm thereof, of an attachment consisting of two cross-heads, each of which carries an electrode through which the motor circuit is completed, one of which cross-heads engages with the rocking bar to raise the reproducer off the phonograph, means released by a coin for effecting the movement of these cross heads so as to open the circuit at one point and close it at the other point, and to lower the reproducer, a catch in the path of the phonograph arm to hold one of the cross-heads in position, means for returning the other cross head to its original position, means for locking it there and simultaneously closing the motor circuit, and means for returning the first cross head to its original position, and thereby breaking the motor circuit, and lifting and shifting the reproducer when the said cross head is released by the phonograph, substantially as described.

50. The combination, with a phonograph, of a plate B having the tongues b b, plates b' b', projection b^2, and pin b^3, and the rocking bar H, all arranged to operate substantially as, and for the purpose set forth.

51. The combination, with a phonograph, of

the plate B, having the tongues b b, plates b' b', projection b^2, and pins b^3 and b^4, rocking bar H and spring pawl I, all arranged to operate substantially as and for the purpose set forth.

52. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of an attachment which consists of two cross-heads, each carrying a plug for making and breaking said motor circuit, a coin controlled locking and releasing device connected with one of said cross heads, and a device operated by said cross heads to lower the reproducer, substantially as described.

53. The combination, with a phonograph operated by a motor, of a coin controlled attachment which consists of two cross heads for operating said phonograph, each of which cross heads carries a projection or plug for making and breaking said motor circuit, means to lower the reproducer and move said cross heads from their normal position to break the motor circuit at one point and close it at another, a device to hold one of the cross heads and keep the circuit closed at that point, and a device to return the other cross head to complete the motor circuit and lock the attachment again before the phonograph can commence to operate, substantially as described.

54. The combination, with a phonograph, operated by a motor, of a coin controlled attachment, which consists of two cross-heads for operating the phonograph, each of which cross-heads carries a projection or plug for making and breaking the motor circuit, means to lower the reproducer, and move said cross heads from their normal position to break the motor circuit at one point and close it at another, a device to hold one of the cross-heads and keep the circuit closed at that point, a device to return the other cross-head to complete the motor circuit and lock the attachment again before the phonograph has commenced to operate, and means operated by the phonograph to break the circuit, raise the reproducer and shift the reproducer, substantially as described.

55. An attachment for operating phonographs, which consists of a frame or box to which are attached guide rods F F′, cross-heads G G′, which travel on said guide rods, springs connected with said box or frame and with said cross heads to return the cross heads, each of said cross heads carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a coin controlled locking and releasing device to release the cross heads, a rocking bar H, a spring pawl I, and a plate B, substantially as described.

56. An attachment for operating phonographs, which consists of a frame or box to which are attached guide rods F F′, cross heads G G′, which travel on said guide rods, springs connected with said box or frame and with the said cross-heads to return the cross heads, each of said cross-heads carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a coin controlled locking and releasing device to release the cross heads, a rocking bar H, a spring pawl I, a projection on the cross-head G′ to prevent the bar H from rising, a projection J. on said cross head G′ which engages the pawl I and holds the cross head G′ at that point, a plate B connected with a sleeve A of the phonograph, one end of which plate is in contact with the phonograph arm a, an adjustable pin b^3, upon which the rocking bar H rests, and an adjustable pin b^4 to trip the pawl I at any desired point on the travel of the phonograph arm, substantially as and for the purpose set forth.

57. An attachment for operating phonographs, which remains normally locked and is released by a coin, consisting of two cross-heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a lever to carry or force both the cross-heads or carriages in the same direction, to break the said motor circuit at one point and close it at the other point, a spring pawl for holding the circuit closed at the last named point, means to return the lever and lock the attachment again, and at the same time, close the motor circuit at the first point, and thereby complete the motor circuit before the phonograph begins to operate, and a device for raising and lowering the reproducer operated by the phonograph through one of the cross-heads, substantially as described.

58. An attachment for operating phonographs, which normally remains locked, and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a device to carry or force both the cross-heads in the same direction to break the motor circuit at one point and close it at the other point, and mechanism to hold the circuit closed, but which is released by the phonograph to break the motor circuit, raise the reproducer and shift said reproducer to its starting point at any desired point in the travel of the phonograph arm, substantially as described.

59. An attachment for operating phonographs, which remains normally locked, and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a lever to carry or force both the cross-heads in the same direction to break the electric circuit at one point and close it at another, mechanism to hold the circuit closed, but which is released by the phonograph to break the motor circuit, raise the reproducer, and shift the reproducer to its starting point at any desired point on the travel of the reproducer, a locking and releasing device which consists of one or more levers, and a fixed stop with which one of the

free ends of said levers engages to lock the attachment, substantially as described.

60. An attachment for operating phonographs, which remains normally locked and is released by a coin, consisting of two cross-heads, each carrying a projection or plug for making or breaking the motor circuit that operates the phonograph, a lever to carry both the cross-heads in the same direction to break the motor circuit at one point and to close it at another, mechanism to hold the circuit closed, the said mechanism being released by the phonograph to break the motor circuit and raise the reproducer, and means to shift the reproducer, substantially as described.

61. An attachment for operating phonographs which remains normally locked and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making or breaking the motor circuit that operates the phonograph, a lever to carry both the cross heads in the same direction to break the motor circuit at one point and close it at another, mechanism to hold the circuit closed, the said mechanism being released by the phonograph to break the motor circuit and raise the reproducer, and springs connected with the cross-heads, which springs are expanded by the traveling of said cross-heads away from the starting point to return said cross-heads and reproducer, substantially as described.

62. The combination with a phonograph operated by a motor having its motor circuit normally open, of a device to hold the phonograph arm in a raised position, a coin controlled attachment operating on said device to lower the phonograph arm, means to close the circuit and lock the attachment before the phonograph commences to operate, mechanism to hold the circuit closed, and adjustable means operated by the phonograph to release said mechanism, break the motor circuit and raise the reproducer, substantially as described.

63. An attachment for operating phonographs, which normally remains locked, and is released by a coin, consisting of a frame or box to which are attached two guide rods, two cross-heads G G′, which travel on said guide rods, each of said cross heads carrying a projection or plug for making and breaking the motor circuit, said circuit being normally broken at one point, and the plug on the cross head G normally closing the circuit at another point before the attachment is released, springs *f*, *g*′, attached to the said frame and cross heads to return the cross heads, a projection J and lug g^{10} on said cross head G′, a spring pawl I, a rocking bar H, upon which the lug g^{10} rests and slides, a detent at one end of the rocking bar H, a spring *h*, connected with the rocking bar H at that point, a lever to break the motor circuit at one point and move the cross head G′ and close the circuit at another point, all arranged to operate substantially as shown and described.

64. In a coin operated phonograph, the combination with a coin operated trigger, and with a cross head, carrying a plug which is released by said trigger, and with an electrode for engagement with said plug, of a carrying arm for the reproducer, and means whereby the carrying arm will break the circuit at the end of the movement, substantially as described.

65. In a coin operated phonograph, the combination with a trigger, tripped by a coin, of a lever which is released by said trigger, and two electrodes, one of which is connected to said lever and moved by it into contact with the other electrode, substantially as described.

66. The combination, with a phonograph operated by a motor, of a coin controlled attachment for operating said phonograph, which attachment consists of two cross-heads, each carrying a projection or plug for making and breaking the motor circuit, means to lower the reproducer and move said cross heads to break said circuit at one point and close it at another, a device to hold one of the cross heads, and keep the circuit closed at that point, a device to return the other cross head to complete the motor circuit, and lock the attachment again before the phonograph has commenced to operate, and means operated by the phonograph to break the circuit and raise the reproducer, substantially as described.

67. The combination, with a phonograph, adapted to be operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a shifting lever to move said cross heads, and a locking mechanism actuated by a coin to release said cross heads, substantially as described.

68. The combination, with a phonograph operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a device operated by one of said cross heads to raise and lower the phonograph arm, locking mechanism actuated by a coin to release said cross heads, and a shifting lever to move said cross heads, substantially as and for the purpose set forth.

69. The combination, with a phonograph, operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a device operated by one of said cross heads to raise and lower the phonograph arm, a shifting lever to move said cross heads, and locking mechanism actuated by a coin to release said cross heads, the locking mechanism consisting of one or more levers carried by one of said cross heads, and a fixed stop with

which said lever or levers engage to lock said cross heads, substantially as and for the purpose set forth.

70. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph which is normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever to lower the reproducer to the phonogram, two movable electrodes moved by said lever to alternately open and close the motor circuit by the forward and backward movement of said lever, and mechanism to hold the circuit closed, but released by the phonograph to break the motor circuit and raise the reproducer at any desired point in the travel of said reproducer, substantially as described.

71. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, by the movement of which in one direction the reproducer is lowered to the phonogram, and the motor circuit closed at one point and is opened at another, and by the return movement of which the attachment is locked again before the phonograph begins to operate and the motor circuit closed at another point, thereby completing the motor circuit, and mechanism to hold the circuit closed released by the phonograph to break said circuit and raise the reproducer at any desired point in the travel of said reproducer, and a device to return said reproducer, substantially as described.

72. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, by the movement of which in one direction, the reproducer is lowered to the phonogram and the motor circuit closed at one point and opened at another, and by the return movement of which the attachment is locked again before the phonograph begins to operate, and the motor circuit closed at another point, thereby completing the motor circuit, a locking and releasing device to hold the attachment locked, operated by a coin to release the attachment, and mechanism to hold the motor circuit closed, released by the phonograph to break the motor circuit and raise the reproducer at any desired point in the travel of the reproducer, substantially as described.

73. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, forming a part of said attachment, by the movement of which in one direction the reproducer is lowered to the phonogram and the motor circuit closed, and means to hold the attachment locked, the said means being released by a coin, substantially as described.

74. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph, which remains normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, forming part of said attachment, by the movement of which in one direction the reproducer is lowered to the phonogram and the motor circuit closed, and mechanism to hold the circuit closed at that point, but released by the phonograph to break said circuit and raise the reproducer at any desired point in the travel of reproducer, substantially as described.

75. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected to the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a device to hold the attachment locked, actuated by a coin to release the attachment, a lever, by the movement of which in one direction from its starting point the motor circuit is broken at one point and closed at another and the reproducer lowered to the phonogram, a device to return the lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, and mechanism, to hold the circuit closed, which is released by the phonograph to break the motor circuit and raise the reproducer from contact with the phonogram at any desired point in the travel of said reproducer, substantially as described.

76. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected to the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a device to hold the attachment locked, the said attachment being operated by said coin to release the attachment, a lever, by the movement of which in one direction from the starting point the motor circuit

is broken at one point and closed at another and the reproducer lowered to the phonogram, a device to return said lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, mechanism, to hold the circuit closed, which is released by the phonograph arm to break the motor circuit and raise the reproducer at any desired point in the travel of said reproducer, and a device to shift the reproducer, substantially as described.

77. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, and is released by a coin, a device to raise and lower the reproducer, a lever, by the movement of which in one direction the reproducer is lowered to the phonogram and said motor circuit broken at one point and closed at another, a device to return the lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, and mechanism, to hold the circuit closed, which is released by the phonograph to break the motor circuit and raise the reproducer from contact with the phonogram at any desired point in the travel of said reproducer, substantially as described.

78. The combination of locking levers K K′ K^2 K^3 constructed as shown and described, springs k k' k^2 k^3 connected therewith, fixed stop M, cross heads G G′, and arm g^8 on said cross head G′, and lever D all arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

79. The combination, with the phonograph arm of a phonograph, of rocking bar H, locking levers K K′ K^2 K^3, constructed as shown and described, springs k k', k^2 k^3 connected therewith, fixed stop M, cross heads G G′ and arm g^8 on said cross head G′ and lever D, all arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification the 28th day of January, A. D. 1891.

ALBERT K. KELLER.

In presence of—

HENRY C. SMITH,

IDA E. GILLILAND.